



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,931	02/12/2002	Shunpei Yamazaki	740756-2433	3751

31780 7590 06/18/2003

ERIC ROBINSON
PMB 955
21010 SOUTHBANK ST.
POTOMAC FALLS, VA 20165

EXAMINER

ISAAC, STANETTA D

ART UNIT PAPER NUMBER

2812

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/072,931

Applicant(s)

YAMAZAKI ET AL.

Examiner

Stanetta D. Isaac

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-80 is/are pending in the application.
- 4a) Of the above claim(s) 1-46, 48-50, 52, 54, 56-58, 60-62 and 64-80 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 47, 51, 53, 55, 59 and 63 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 7+4
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 47 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The limitation “gettering the material for promoting crystallization into the **third layer semiconductor film**”, however, there is no forming of third semiconductor film anywhere stated in this claim.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 47, 51, 53, 5, 59, and 63 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda et al. US Patent 6,337,259 in view of Gotou et al. US Patent 6,436,745.
5. Ueda discloses the semiconductor method substantially as claimed. See **figs. 1-7F** where Ueda teaches a method of manufacturing a semiconductor device comprising:

forming a first semiconductor film **22** having an amorphous structure over a substrate;

providing the first semiconductor film with a material for promoting crystallization

22; heating the first semiconductor film for crystallizing;

irradiating the first semiconductor film with a laser light for improving crystallinity;

forming a barrier layer **30** over the first semiconductor film having crystalline structure;

6. However, Ueda fails the step of forming a second semiconductor film over the barrier layer and gettering the material for promoting crystallization into the third semiconductor film. See **Figs. 1A-5** where Gotou teaches the step of forming a second semiconductor film over the barrier layer and gettering the material for promoting crystallization into the third semiconductor film. In view of Gotou it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate Gotou into Ueda semiconductor method because a gettering process is conducted using the second silicon directly formed on the whole surface of the first silicon film instead of using parts of the first silicon film in addition, a catalytic metal element is used to promote crystallization of silicon of silicon. (See **col. 6 lines 27-67; col. 7 lines 45**)

7. Pertaining to claim 51, Ueda teaches a method of manufacturing a semiconductor device according to claim 47, wherein the barrier layer is formed by oxidizing a surface of the first semiconductor film by using a solution containing ozone.

8. Pertaining to claim 53, Ueda teaches a method of manufacturing a semiconductor device according to claim 47, wherein the barrier layer is formed by oxidizing a surface of the first semiconductor film by irradiating ultraviolet light.

9. Pertaining to claim 55, Ueda a method of manufacturing a semiconductor device according to claim 47, wherein the inert gas element is at least an element selected from the group consisting of He, Ne, Ar, Kr and Xe.

10. Pertaining to claim 59, Ueda a method of manufacturing a semiconductor device according to claim 47, wherein the second semiconductor film comprises the inert gas element at a concentration of 1×10^{19} to 1×10^{22} /cm³.

Art Unit: 2812

11. Pertaining to claim 63, Ueda teaches a method of manufacturing a semiconductor device according to claim 47, wherein the semiconductor device is applied to an electronic apparatus selected from the group consisting of a personal computer, a video camera, a mobile computer, a goggle type display, a DVD, a digital camera, a front type projector, a rear type projector, a mobile phone and an electronic book.


Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stanetta D. Isaac whose telephone number is 703-308-5871. The examiner can normally be reached on Monday-Friday 7:30am -5:30pm.

13. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Nebling can be reached on 703-308-3325. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-3432 for After Final communications.

14. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Stanetta Isaac
Patent Examiner
June 15, 2003


John F. Niebling
Supervisory Patent Examiner
Technology Center 2800